University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

Industry 5.0 and Financial Sector : A Comprehensive Analysis

JV'n Swati Kunwar, Research Scholar
JV'n Dr. O.P. Gupta, Professor
Jayoti Vidyapeeth Women University, Jaipur

ABSTRACT :

Technology is one of the key forces influencing the future of Banking sector , along with political and economic concerns. To make strategic decisions, accurately predict the future, and maximise available opportunities, banking managers urgently need to be aware of technological trends. The world economy is in a recessionary phase, and the pandemic's aftereffects are available to everyone. Organisations of all kinds are subject to their unprecedented consequences; the banking industry is not exception. It's critical to implement creative approaches in the banking sector in light of the numerous significant shifts and crises. The extent to which finances are handled and controlled, given that they are the backbone of any nation's economy and economic activity. Banks and other financial organisations must provide timely, appropriate products and services to their customers. A fresh vision for banking is required. The next area that needs to be prioritised is fostering fine technologies and the digital economy. These modifications are known as Banking 5.0 in light of digital transformation. Application of Industry5.0 technologies in the context of banks, such as edge computing, digital twins, cobots, internet of everything, big data analytics, and 6G and beyond, can help banks lower the cost of their products and services, retain current customers, maintain customer confidentiality and privacy, improve their risk management procedures, provide error-free financial services, and promote data-driven culture in decision making, as well as successful integration. This exploratory study is anticipated to establish the groundwork for subsequent investigations that will empirically examine the adoption of I5.0 technologies within banks.

Key Words : Industry 5.0, financial Sector, Artificial Intelligence, COBOTS, New Technologies, Banking Industry

INTRODUCTION :

In the past few years, the appearance of technological advances has played a significant role in increasing organisational efficiency . Technological advances since the beginning of industrialization have resulted in significant changes in the business development process. As a result, these effects can be referred to as industrial revolutions. Organisations want to use the benefits of innovation to meet the needs of their customers while also gathering useful information from them. Five major changes in industry throughout history are considered in the course of the industrial revolutions. Compared to Industry 4.0, the goal of Industry 5.0 is to use the creativity of human experts in collaboration with efficient, intelligent, and accurate machines to achieve production solutions with efficient and user-friendly resources.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

Industrial Revolution Phases

1. The first industrial revolution is defined by the invention of the steam engine (between 1760 and 1840).
2. The use of electricity & cutting edge manufacturing in industrial processes (between 1870 and 1969) defined the second industrial revolution.
3. Automation of Computers and programmed controls till 20th centuries is known for the digital revolution i.e Industry 3.0. the usage of circuits chips digital logics, mass production, etc.
4. Industry 4.0 emerged from a public-private initiative in Germany to build smart factories by integrating physical objects with digital technologies. The profound change in the connection of production systems caused by the integration of information and communication technology is the main element that describes the stages of Industry 4.0.
5. The idea of industry 5.0 emerged when the companies relied more on digitization and lost the human touch. To achieve technological and industrial goals without compromising socioeconomic & environmental performance.

The initial phase of the evolution from Industry 4.0 to Industry 5.0 is understood to recognise the power of industry to achieve societal goals other than jobs and growth, to become a resilient practitioner of prosperity by making production respect the boundaries of our planet and putting the well-being of industry workers at the centre of the production process. Industry 5.0 is now envisioned as a collaboration between influential, intelligent, and precise machines and the unique creativity of human experts. Many technological visionaries believe that Industry5.0 will restore the human touch to the manufacturing industry. High-speed, high-precision machines are expected to be integrated with critical and human cognitive thinking in Industry 5.0. Another important feature of Industry 5.0 is mass personalization, which allows customers to select personalised and customised products based on their preferences and needs. Industry 5.0 significantly improves production efficiency by enabling human-machine adaptability and empowering interaction and continuous monitoring activities. The goal of human-machine collaboration is to increase output at a rapid pace. By assigning repetitive and uniform tasks to robots/machines and tasks that require critical thinking for humans, Industry 5.0 can improve production quality.

The studies have identified a few potentials of Industry 5.0

- First, it asserted that human collaboration, particularly the interaction of intellectual professionals with machines, is expected to promote more skilled jobs than I4.0.
- Second, it is expected to improve customer satisfaction through product customization in large-scale production.
- Third, it emphasises the link between I4.0 applications and human-robot collaboration (cobots) rather than CPS connectivity.
- Fourth, it provides a long-term strategic roadmap for environmental protection and preservation.
- Fifth, it makes use of predictive analytics and operational intelligence to develop accurate decision-making models.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

INDUSTRY 4.0	COMPARISION	INDUSTRY 5.0
FOCUS ON ATTACHED MACHINES	1	FOCUS ON CUSTOMER EXPERIENCE
MASS CUSTOMIZATION	2	BEYOUND CUSTOMIZATION
INTELLIGENT SUPPLY CHAIN	3	RESPONSIVE & DISTRIBUTED SUPPLY CHAIN
SMART PRODUCT	4	INTERACTIVE EXPERIENCE OF THE PRODUCT
DISTANCE OF HR FROM FACTORIES	5	RETURN OF MANPOWER TO FACTORIES

Table 1 : Comparison between Industry 4.0 & Industry 5.0

Banking Industry is one of the largest active industries, it must seek to create an integrated system to achieve solutions to facilitate the banking and mobile banking processes in order to capitalize on the existing conditions. However, this is due to the maturity and growth of new technologies such as artificial intelligence, virtual reality, and voice recognition systems, which work together to advance banking services and solve modern banking problems. They are rethinking their approaches. Banking does not always take place in banks. Banking should be integrated into all organisations' and individuals' business activities and tasks. Banking should be done whenever and wherever it is necessary. Non-financial transactions must clearly record bank transactions for the customer's benefit. This is not to say that every business or individual should become a bank. That is, banking transactions should be considered routine. This transaction should typically be prepared and processed by an external entity that, if necessary, has a bank licence to assure the customer of the transaction's dependability and trustworthiness.

In other words, the customer and their needs should be at the centre of the transaction, not the bank. Internally, the operation must be performed by an actor, who can be a robot, a human, or, in most cases, a combination of the two (a Cobot). Artificial intelligence (AI) is required for the robot. This viewpoint emphasises the significance of human-machine collaboration. Artificial intelligence is critical in this new perspective. Banking 5.0 arose from an industrial revolution fueled by artificial intelligence, similar to the previous four industrial revolutions fueled by other powerful technologies. The 2020 epidemic is putting even more pressure on Banking 5.0 to become more agile, responsive, and relevant. Customers will experience a cultural shift as a result of Banking 5.0. This approach must evolve from passive to preventive, with a plethora of new services and products, new business models, and a greater emphasis on default prevention. Over the years, customer needs, knowledge, and expectations have grown exponentially. Financial institutions must adapt to their customers' needs. In an age of urgency, constant change, and overwhelming choices, where loyalty is no longer guaranteed, it must go beyond its core products and services if it is to retain and grow its customer base. It must be innovative and adapt its approach. Understanding who bank customers are and how their needs are expressed or implied is critical.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

BANKING 5.0 COMPARED TO PAST

BUSUINESS MODEL COMPONENTS	TRADITIONAL BANKING	DIGITAL BANKING	BANKING 5.0 MODEL
Philosophy	Providing services	Digital Banking	Embedded Banking, Humanization
Suggested Value	Limited Services, network & staff. Performed at specified time. Depend on experience and qualification of employee	Unlimited, Can go beyond geographical area & access of 24 hr a day	Instant services, Stability, Fine Technology
Proximity	Take Time & Money	Fast services, communication like SMS	Advanced CRM
Segmentation	Segmentation	Online, in the branch	A customer department
Location	Flexibility is limited to a small number of service channel	Flexible & performed through any channel as per customer	Online, Mobile, Chat Bot
Platform	OLD system	Digital & Automatic	Multi service platform, AI
Processes	Bureaucratic	Bureaucratic	Flexible & Pure
Person	Operator duties performed by Bank Employees	Operator duties performed by Bank Customers or Automatically	Human Robot Collaboration, RPA
Partnership	Limited to bank insurance	Unity and participation	Ecosystem, FinTech, Big Tech
Pricing	Top, taking into account bank costs for personnel and maintenance departments	Low service, often free	Pricing risk, machine learning
Payment	Key models are about staff and department maintenance	Articles are key to buying and maintaining servers and bundles	Pay as you go
Protection	Physical Protection	Password & PIN	Cyber security

Table 2 : Industry 5's banking model with the past

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

Financial institutions, particularly banks, have evolved over time. The changes are classified as micro and macro in order to provide insight into the evolution of parallel industrial revolutions and banking revolutions. Predominant banking sector transformations were significant and can be linked to economic and social changes, which continued to provide better services to bank customers. The five innovative waves are identified and linked to banking sector innovation.

STAGES	INDUSTRIAL INNOVATIONS	BANKING INNOVATION
INDUSTRIAL REVOLUTION FIRST	STEAM ENGINES, INDUSTRAIL PRODUCTION, TRANSPORTATION	CENTRAL BANKS, CLEARING HOUSES
INDUSTRIAL REVOLUTION SECOND	ELECTRICITY, TELEGRAPH, LABOUR DIVISION	NETWORK OF BANK BRANCHES
INDUSTRIAL REVOLUTION THIRD	COMPUTERS, TELECOMMUNICATION NETWORK, ERP,TELEX, MINITEL	BANKING APPLICATIONS, MICR, DEMATERIALIZATION
INDUSTRIAL REVOLUTION FOURTH	CLOUD, INTERNET OF EVERYTHING, ICT	MOBILE BANKING, CRYPTO CURRENCY, HIGH FREQUENCY TRADING
INDUSTRIAL REVOLUTION FIFTH	ARTIFICIAL INTELLIGENCE, ROBOTIC PROCESS AUTOMATION, HUMANIZATION, SUSTAINABILITY	COGNITIVE THINKING, ROBO ADVISOR, RESPONSIBLE BANKING, EMBEDDED BANKING

Table 3: Evolution in Industry & Banking at every Revolution Stage

After analyzing all the things following questions have been found out and this research paper has answered these questions.

1. Define the industry 5.0 indicators for successful entry into banking 5.0?

2. What are the possible connections between the identified indicators?

3. Which indicators should be prioritized for word banking 5.0 success?

The main feature of Industry 5.0 is the return of the human touch to the centre of decision making through collaboration between humans and machines. Furthermore, Industry 5.0 will result in: global society evolution, waste reduction and waste prevention activities. Bioengineering and biotechnology have a significant impact on business and society. The following are the most significant advantages of Industry 5.0:

1. Increased productivity,

2. Agility and profitability or improved adaptability,

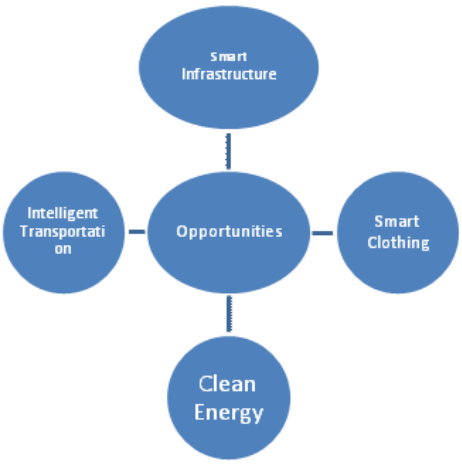
3.Change-readiness, a responsive workplace

4. Reduced overall costs

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

Nonetheless, there are two additional key advantages to consider :

1. The evolving global society, which will play an important role in the ongoing digital transformation in business, as well as spare time next to supporting technology without fear of losing a job due to automation about new business models, as well as the generation of open-minded and well-skilled forward-thinking employees;
2. Waste prevention within the four named types to generate sustainability, save costs, protect the environment, and improve communication with society;



INNOVATIVE APPLICATION OF INDUSTRY 5.0

Employees and workers, as well as society, benefit from Industry 5.0. This sector's deployment promotes resource-use technologies that are both sustainable and ethical. It promotes human decision-making and benefits from enabling technology, which aids in the transformation of many different sectors. Among the most important applications are:

Smart Hospitals :

One of the major applications of "Industry 5.0" is a real-time, smart hospital. It is critical for improving the quality of life of medical professionals. Doctors may use smart healthcare technology to remotely examine infected individuals and provide useful information for better medication, as in the COVID-19 pandemic.

Genetic data, natural language processing, and medical imaging are all used in machine learning. Disease detection noted that I5.0 enables the production of customised smart implants in accordance with changing client demands.

AI technologies are being used in the medical industry to measure a variety of parameters, including glucose levels. The standard implant creation procedure has evolved and is now used to update a variety of tools and medical equipment.

Manufacturing Industries :

"Industry 5.0" is a revolutionary new manufacturing model that emphasises human-machine communication. The primary goal of "Industry 5.0" is to maximise human creativity and the ability of more accurate machinery to collaborate. It develops procedures for resource recycling and reuse in order to make production more sustainable. Manufacturing must also have fewer negative environmental effects. Personalization must be increased when using additive manufacturing to reduce waste and maximise resource efficiency. Industry 5.0 is revolutionising industrial processes all over the world by relieving human workers of tedious tasks.

Manufacturers can locate production facilities in areas with low manufacturing costs and near inexpensive raw material sources. Cloud manufacturing will handle control of plant machinery and

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

activities related to the production lifecycle. By incorporating service components into the manufacturing process, the manufacturing sector attempts to increase production efficiency, value addition, and market share. The manufacturing services are managed by a cost-effective virtualized platform. Cloud manufacturing employs distributed and networked production resources.

Supply Chain Management :

Supply chain 5.0 emphasises the importance of collaboration between humans and COBOTS and other intelligent robots. Customers' demands for hyper customization in Industry 5.0 necessitate a combination of human creativity and machine proficiency. Robots are required for supply chain management in large quantities of standard procedures, which are added to every product. This is a challenge because robots require precise instructions.

Human interaction is not always required when customising and personalising products. However, it also ensures that the supply chain runs smoothly from start to finish, including the selection of raw materials after taking into account each customer's specific customization and modification requirements.

APPLICATION OF INDUSTRY 5.0 IN FINANCIAL SECTOR :

Although I5.0 implementation in banks is still in its early stages, a few conceptual studies have attempted to categorise potential I5.0 impacts on the banking sector. AI, cobots, and sustainability will transform the banking sector by partnering with new emerging banks, assisting them in maintaining competitive markets and creating new banking pathways. The impact of AI on the banking sector is expected to be as diverse as the transformations brought about by electricity 100 years ago, allowing banks to survive in a rapidly changing industry. However, it also ensures that the supply chain runs smoothly from start to finish, including the selection of raw materials after taking into account each customer's specific customization and modification requirements.

Industry 5.0 aims to combine intelligent and automated digital ecosystems with human interaction. The incorporation of human factors in such a process enables the customization of end-user experiences as well as the development of efficient operations.

I5.0 technological innovations and their application in the financial sector

I5.0 TECHNOLOGICAL INNOVATIONS AND THEIR APPLICATION IN THE FINANCIAL SECTOR

Edge (Cloud) Computing : As the "Internet of Things" expands and more cloud services become available, a new term called "Edge Computing" has emerged to describe data processing at the network's edge. Edge Computing benefits both the "Industry 4.0" and "Industry 5.0" transitions significantly. Edge computing can meet requirements for battery life limits, latency charges, system performance, data security, and privacy. Edge computing reduces communication costs and ensures that programmers can

work effectively even in remote locations. Edge Computing can help with data processing, cache coherency, computation offloading, transferring, and delivering requests, among other things.

Digital Twins : Digital Twins are "digital reproductions of physical systems or objects." Digital Twins enable digital representations of real-world items such as factories, wind farms, buildings, jet engines, and even larger systems such as smart cities (Lu, 2020). Despite the fact that the concept of a Digital Twin was first introduced in 2002, it has recently gained traction with the evolution of IoT. IoT reduced the cost of Digital Twin, making it accessible and affordable to a wide range of businesses. The information from physical objects is sent to their digital equivalent for simulation via IoT devices. Using Digital Twins to digitally map real-time objects and systems allows for the assessment, monitoring, and avoidance of problems before they manifest in the real world. Because of the rapid development of digital twins, it has been possible to reduce maintenance costs and improve system performance. The development of machine learning, artificial intelligence, and big data analytics. Industry 5.0 benefits from Digital Twins by identifying technological obstacles faster. identifying components that can be improved or modified based on performance, making more precise predictions, anticipating future errors, and avoiding significant financial losses.

COBOTS (Collaborative Robots) : As these robots are designed using smart technologies and AI, which are undergoing tremendous fluctuations, emerging trends in automation and robotics have essentialized human interaction with robots. Cobots are robotic devices, particularly those with computational capabilities, that perform better with human interaction. Although robots are much more efficient in producing large quantities of identical products, they are unable to personalise and customise products due to a lack of critical thinking. As a result, I5.0 proposes collaborating humans and robots to produce customised products at a faster and more accurate rate. Customers today want accurate and quick personal banking, so leveraging cobots will allow banks to provide error-free and quick personalised banking services to a large customer base.

Internet Of Things (IOE) : As these robots are designed using smart technologies and AI, which are undergoing tremendous fluctuations, emerging trends in automation and robotics have essentialized human interaction with robots. Cobots are robotic devices, particularly those with computational capabilities, that perform better with human interaction. Although robots are much more efficient in producing large quantities of identical products, they are unable to personalise and customise products due to a lack of critical thinking. As a result, I5.0 proposes collaborating humans and robots to produce customised products at a faster and more accurate rate. Customers today want accurate and quick personal banking, so leveraging cobots will allow banks to provide error-free and quick personalised banking services to a large customer base.

Big Data Analysis {BDA} : BDA has played an important role in the transition to I5.0 because it can be used to design pricing strategies, improve production efficiency, and lower overhead costs by understanding consumer behaviour. Organisations invest heavily in understanding their customers' and social affiliations' existing behaviour, generating a large volume of data that can be used to promote existing products, customise processes, and smartly automate their operations. BDA has also been used in decision-making to gain a competitive advantage over competitors, allowing for mass customization

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

of operations. Indeed, banks are the largest producers of big data, and they are leveraging discrete potentials of BDA to understand their customers' current behaviours in order to promote desired financial products. The I5.0 BDA technology can also be used as a strategic decision making tool to promote a data-driven culture for accurate decision making and to help banks maintain a highly competitive environment.

Blockchain : Blockchain technology greatly benefits Industry 5.0. The centralised control of a large number of heterogeneously linked devices is a significant challenge in Industry 5.0. Blockchain's secure peer-to-peer interactions provide a permanent record-keeping system. In "Industry 5.0" applications, an absolute ledger also supports operational responsibility and transparency for major events. Smart contracts can be used in Industry 5.0 to ensure security through authentication and automated service-oriented operations. Segmented and distributed blockchain-based approaches can also improve data and transaction security. By generating digital identities for various individuals and organisations, blockchain can be used to effectively manage subscribers in Industry 5.0. It is required for access control and stakeholder identification in any business transaction conducted over a public network. These advancements can be used to manage a variety of assets, such as real estate, products, and services. Furthermore, Blockchain-based cloud manufacturing encourages machine-to-machine communication and data sharing.

6G And Beyond : 6G is expected to generate I5.0 signatory value-based services. It is still difficult to build a dense radio infrastructure that includes millions of sensors, hardware components, and robots. Furthermore, existing networks powered by 4G and 5G are unable to develop smart infrastructure by meeting bandwidth requirements. In this regard, 6G and beyond technologies can play an important role in the spread of I5.0 in order to create superior quality services and meet IoT infrastructure requirements. These networks will meet the standards of the intelligent information society by providing ultra-high data bandwidths that are highly reliable, efficient, and have maximum traffic holding capacity. This I5.0 technology is critical for banks because almost all banks have been digitalized, so 6G and higher are required for holding a large number of customers attempting to perform financial transactions. Furthermore, this technology will enable banks to successfully implement contactless banking, which has become the new norm for modern-day bank customers.

Various Other Technological Advancements : Modern technologies, such as Extended Reality, Private Mobile Networks, Network Slicing, and so on, are examples. Using the Network Slicing concept, many virtualized networks can be enabled on top of a single real network infrastructure. It distributes physical network resources across multiple virtualized networks. The needs of various vertical applications can be met by customising and tuning each virtualized network. Another cutting-edge technology with numerous applications is Extended Reality. By combining the real and virtual worlds, Extended Reality can improve interactions between humans and machines. The term "Extended Reality" refers to a variety of technologies such as virtual reality (VR), augmented reality (AR), and mixed reality (MR).

Various Industry 5.0 applications will benefit greatly from XR technology. Remote assistance, assembly line monitoring, remote healthcare, health education and training, indoor and localised outdoor

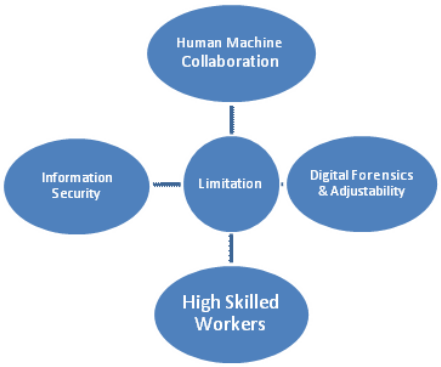
University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

navigation, driver and pilot training, maintenance, and drone/UAV pilot education and training are all applications that use XR technology.

OBSTACLES FACED IN ADOPTION OF INDUSTRY 5.0 IN THE FINANCIAL SECTOR

It is easier to overlook potential challenges as industry 5.0 approaches. The challenges for industry 5.0 developments to succeed for the business are being identified and solved.

1. People must develop competency skills because, when working with advanced robots, human workers must learn about collaborating with smart machines and robot manufacturers . Aside from the soft skills required, human workers must also learn technical skills. Programming an industrial robot and managing translation in new jobs are difficult tasks that necessitate a high level of technical expertise.
2. Adoption of advanced technology necessitates more time and effort on the part of human workers. Industry must adopt customised software-connected factories, collaborative robotics, artificial intelligence, real-time information, and the internet of things. 5.0
3. Advanced technologies necessitate investments. UR Cobot does not come cheap. Training human workers for new jobs incurs additional costs. Companies are having difficulty upgrading their production lines for Industry 5.0. Adopting Industry 5.0 is costly because it necessitates smart machines and highly skilled employees in order to increase productivity and efficiency.
4. Security is a challenge for Industry 5.0 because trust in ecosystems is critical. The scale to interact with various devices is used in the industry to stand against future quantum computing applications to deploy IoT nodes. Artificial intelligence and automation in industry 5.0 pose risks to the business, necessitating the use of trusted security. Because Industry 5.0 applications are focused on ICT systems, strict security requirements are required to avoid security challenges.



FUTURE CONCERNS FOR INDUSTRY 5.0 IN FINANCIAL SECTOR

Through the use of a computerised model, cognitive computing aims to stimulate human thought processes. Data mining, pattern recognition, natural language, and other techniques are used with self-learning algorithms so that the computer can mimic how the human brain functions.

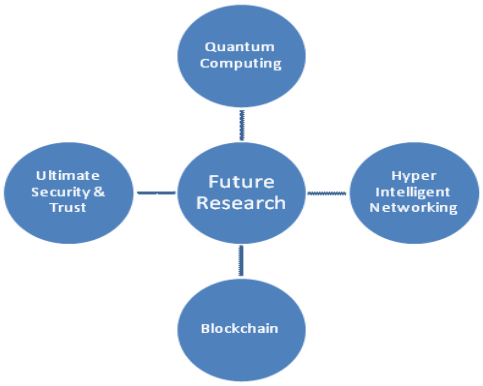
Interaction between humans and machines through user interfaces is referred to as human and machine interaction. Gestures and other natural user interfaces are used to draw attention because they enable easy and instinctive machine control by people. It keeps people at the centre of the system and allows for technological advancements to be built in, so it represents industry 5.0's future direction. Even the user interface aids in understanding human motivations and behaviour. A type of computation known as quantum computing uses the collective properties of quantum states, such as interference entanglement, to perform calculations.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 2 (April-June, 2023)

The tools function as quantum computers, performing quantum computations.

It is making calculations that are concentrated on the likelihood of the object's state prior to measurement.

Industry 5.0 keeps people at the centre of the system while incorporating technologies. Even the user interface aids in understanding human motivations and behaviour.



CONCLUSION :

The purpose of this conceptual study is to investigate the spread of industry 5.0 (I5.0) among banking institutions. The study demonstrates how the previous industrial revolution (I4.0), which is still in its infancy, is connected to the emergence of I5.0. However, the problems with malfunction and productivity loss during automation made it essential to use human expertise to direct and regulate the production of goods and products. Designing specialised and value-added services can benefit from the creativity and innovation of the experts. According to this study, the ups and downs in banking can be linked to the parallel shifts in technology that occurred during each stage of the industrial revolution.

Utilising I5.0 technologies like edge computing, digital twins, cobots, the internet of everything, big data analytics, and 6G and beyond can help banks lower the cost of their goods and services, retain current clients, protect customer privacy and confidentiality, enhance risk management procedures, provide error-free financial services, and successfully integrate digitalization. Even though I5.0 technologies are anticipated to significantly aid banks in their transition, empirical studies are still needed to offer a theoretical framework for examining the capabilities and resources that are available to manage this transition.

REFERENCES :

1. Maddikunta, P.K.R.; Pham, Q.-V.; B, P.; Deepa, N.; Dev, K.; Gadekallu, T.R.; Ruby, R.; Liyanage, M. Industry 5.0: A survey on enabling technologies and potential applications. J. Ind. Inf. Integr. 2021, 26, 100257.
2. Nethravathi, P.S.R.; Bai, G.V.; Spulbar, C.; Suhan, M.; Birau, R.; Calugaru, T.; Hawaldar, I.T.; Ejaz, A. Business intelligence appraisal based on customer behaviour profile by using hobby-based opinion mining in India: A case study. Econ. Res.-Ekon. Istraživanja 2020, 33, 1889-1908.
3. Motienko, A. Integration of information and communication system for public health data collection and intelligent transportation system in large city. Transp. Res. Procedia 2020, 50, 466-472.
4. Brettel, M.; Friederichsen, N.; Keller, M.; Rosenberg, M. How virtualization, decentralization and network building change the manufacturing Landscape. Int. J. Mech. Ind. Sci. Eng. 2014, 8, 37-44.
5. Hermann, M.; Pentek, T.; Otto, B. Design Principles for Industrie 4.0 Scenarios. In Proceedings of the 2016 49th Hawaii International Conference on System Sciences (HICSS), Koloa, HI, USA, 5-8 January 2016; pp. 3928-3937.
6. Mehdiabadi, A.; Tabatabeinasab, M.; Spulbar, C.; Karbassi Yazdi, A.; Birau, R. Are We Ready for the Challenge of Banks 4.0? Designing a Roadmap for Banking Systems in Industry 4.0. Int. J. Financ. Stud. 2020, 8, 32.
7. Jamal, A.A.; Majid, A.A.M.; Konev, A.; Kosachenko, T.; Shelupanov, A. A review on security analysis of cyber physical systems using Machine learning. Mater. Today Proc. 2021, in press.

8. Sung, Y.A.; Kim, K.W.; Kwon, H.J. Big Data analysis of Korean travelers' behavior in the post-COVID-19 Era. Sustainability 2021, 13, 310.
9. Soo, A.; Ali, S.M.; Shon, H.K. 3D printing for membrane desalination: Challenges and future prospects. Desalination 2021, 520, 115366.
10. Parmar, H.; Khan, T.; Tucci, F.; Umer, R.; Carlone, P. Advanced robotics and additive manufacturing of composites: Towards a new era in Industry 4.0. Mater. Manuf. Processes 2022, 37, 483-517.
11. Ali, Q., Yaacob, H., Parveen, S., Zaini, Z. (2021). Big data and predictive analytics to optimise social and environmental performance of Islamic banks. Environment Systems and Decision, 41(4), 1-17.https://doi.org/10.1007/s10669-021-09823-1
12. Amberber, E. (2015). Banking is necessary, banks are not. 7 Quotes from Bill Gates on Mobile Banking. Atwell, C. (2017). Yes, Industry 5.0 is Already on the Horizon. Retrieved from https://www.machinedesign.com/automation-iiot/article/21835933/yes-industry-50-is-already-on-thehorizon [accessed 20 February 2022].
13. Bednar, P.M. and Welch, C. (2019). Socio-technical perspectives on smart working: Creating meaningful and sustainable systems. Information Systems Frontiers, 1-18. https://doi.org/10.1007/s10796-019- 09921-1
14. Breque, M., De Nul, L., & Petridis, A. (2021). Industry 5.0: towards a sustainable, human-centric and resilient European industry. European Commission, Directorate-General for Research and Innovation,
15. Luxembourg, LU.Carr, E.H., & Haslam, J. (1980). From Napoleon to Stalin and Other Essays. Macmillan London: London, UK, 1980.
16. Castillo, F. (2016). Managing information solution. Springer International Publishing, Cham, Switzerland.
17. Chowdhury, M.Z., Shahjalal, M., Ahmed, S., & Jang, Y.M. (2020). 6G wireless communication systems: Applications, requirements, technologies, challenges, and research directions. IEEE Open Journal of the Communications Society, 1, 957-975.
18. Demir, K.A., D¨oven, G., & Sezen, B. (2019). Industry 5.0 and human-robot co-working. Procedia Computer Science, 158, 688-695. https://doi.org/10.1016/j.procs.2019.09.104
19. Doyle-Kent, M., & Kopacek, P. (2019). Industry 5.0: Is the Manufacturing Industry on the Cusp of a New Revolution? In Proceedings of the International Symposium for Production Research, pp. 432-441, Springer, Cham
20. Abdirad, M., Krishnan, K., & Gupta, D. (2021). A two-stage metaheuristic algorithm for the dynamic vehicle routing problem in industry 4.0 approach. Journal of Management Analytics, 8(1), 69-83.
21. Adel, A. (2022). A conceptual framework to improve cyber forensic Administration in Industry 5.0: Qualitative study approach. Forensic Sci , 111 - 129.
22. Alhassan, A., Zhang, X., Shen, H., & Xu, H. (2020). Power transmission line inspection robots: a review, trends, and challenges for future research. International Journal of Electric Power Energy System.
23. Aslam, F., Aimin, W., Li, M., & Rehman, K. (2020). Innovation in the era of IOT and Industry 5.0: absolute innovation managemet framework. p. 124.
24. Babamiri, B., Bahari, D., & Salimi, A. (2019). Highlyb sensitive bioaffinity electrochemiluminescence sensors: recent advances and future directions.
25. Bednar, P., & Welch, C. (2020). Socio - technical perspectives on smart working: creating meaningful and sustainable systems. Information System Front, pp. 282-298. Retrieved from https://doi.org/10.1007/s107966-019-09921-1
26. Bhattacharya, S., Maddikunta, R., Somayaji, S. R., Lakshmanna, K., Kaluri, R., Hussein, A., & Gadekallu, T. R. (2020). Load balancing of energy cloud using wing driven and firefly algorithms in internet of everything. Journal of parallel and distributed computing, 16-26.
27. Cheng, Y., Chen, K., Sun, H., Zhang, Y., & Tao, F. (2018). Data and Knowledge mining with big data towards smart production. Journal of Industrial Tnformation Integration, 1 - 13.